Introducing PARCC

Partnership for Assessment of Readiness

for College and Careers

PARCC

Partnership for Assessment of
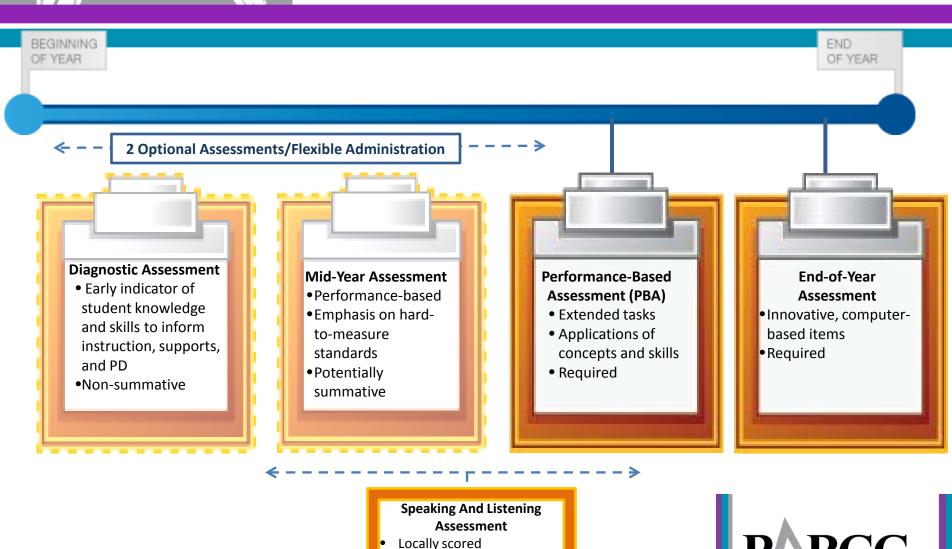Readiness for College and Careers

PARCC is designed to reward
quality instruction aligned to the Standards,
so the ***assessment is worthy of preparation***
rather than a distraction from good work.

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PARCC Assessment Design

English Language Arts/Literacy and Mathematics, Grades 3-11

BEGINNING OF YEAR

END OF YEAR

2 Optional Assessments/Flexible Administration

Diagnostic Assessment
- Early indicator of student knowledge and skills to inform instruction, supports, and PD
- Non-summative

Mid-Year Assessment
- Performance-based
- Emphasis on hard-to-measure standards
- Potentially summative

Performance-Based Assessment (PBA)
- Extended tasks
- Applications of concepts and skills
- Required

End-of-Year Assessment
- Innovative, computer-based items
- Required

Speaking And Listening Assessment
- Locally scored
- Non-summative, required

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What are Performance Level Descriptors?

Performance Level Descriptors or PLDs describe what students at each performance level know and can do relative to the grade-level or course content standards assessed.
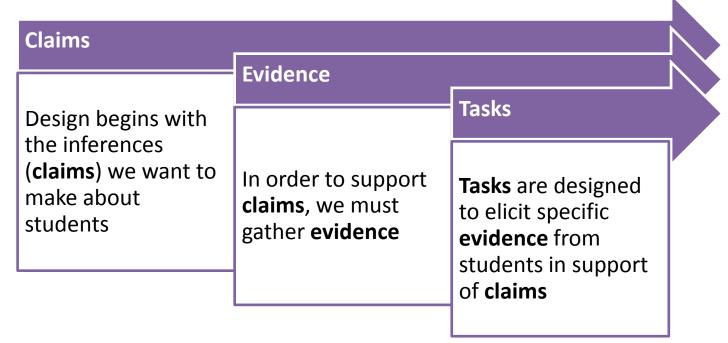
PARCC Established 5 PLDs

- Level 5: Students performing at this level demonstrate a **distinguished** command of the knowledge, skills, and practices embodied by the Common Core State Standards assessed at their grade level.

- Level 4: **Strong** command…
- Level 3: **Moderate** command…
- Level 2: **Partial** command…
- Level 1: **Minimal** command…

Evidence-Centered Design (ECD) for the PARCC Assessments

Claims

Design begins with the inferences (**claims**) we want to make about students

Evidence

In order to support **claims**, we must gather **evidence**

Tasks

Tasks are designed to elicit specific **evidence** from students in support of **claims**

ECD is a deliberate and systematic approach to assessment development that will help to **establish the validity** of the assessments, **increase the comparability** of year-to year results, and **increase efficiencies/reduce costs**.

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Advances in the PARCC ELA/Literacy Assessment

August 2012

PARCC's Core Commitments to ELA/Literacy Assessment Quality

- **Texts Worth Reading**:   Authentic texts worthy of study instead of artificially produced or commissioned passages.

- **Questions Worth Answering**: Sequences of questions that draw students into deeper encounters with texts rather than sets of random questions of varying quality.

- **Better Standards Demand Better Questions:** Custom items written to the Standards instead of reusing existing items.

- **Fidelity to the Standards**: PARCC evidences are rooted in the language of the Standards so that expectations remain the same in both instructional and assessment settings.

PARCC Design for ELA

1. **Complexity:** Regular practice with complex text and its academic language.

2. **Evidence:** Reading and writing grounded in evidence from text, literary and informational.

3. **Knowledge:** Building knowledge through content rich nonfiction.

Nine Specific Advances in the PARCC ELA/Literacy Assessment

1. A **staircase of text complexity** to ensure students are on track each year for college and career reading.

2. Rewards careful, **close reading** rather than racing through passages.

3. Systematically focuses on the **academic language** that pervades complex text - not obscure vocabulary.

Shift 2: Reading and writing grounded in evidence from text, literary and informational

4. Rigorously **citing evidence** from texts throughout the assessment (including selected-response items).

5. Questions with **more than one right answer** to allow students to generate a range of rich insights that are substantiated by evidence from text(s).

6. **Writing to sources** rather than writing to de-contextualized expository prompts.

7. **Rigorous expectations** for narrative writing, including accuracy and precision in writing in later grades.

8. Assesses not just ELA but a full range of **reading and writing** across the disciplines of **science and social studies**.

9. **Simulates research** on the assessment, including the comparison and synthesis of ideas across a range of informational sources.

Evidence with Complex Texts is at the Core of Every Part of the Assessment!

Two standards are always in play:

- Reading Standard One (Use of Evidence)

- Reading Standard Ten (Complex Texts)

(In selected-response and constructed-response items for reading and writing!)

Three Innovative Item Types

Range of Prose Constructed Responses (PCR)—

- Elicits evidence that students have understood a text or texts they have read and can communicate that understanding well in terms of written expression and knowledge of language and conventions.

- There are *four* of these items of varying types on each annual performance-based assessment.

Three Innovative Item Types

Evidence-Based Selected Response (EBSR)—

- Combines a traditional selected-response question with a second selected-response question that asks students to show evidence from the text that supports their answer to the first question.

- Underscores the importance of Reading Anchor Standard 1 for implementation of the CCSS.

Three Innovative Item Types

Technology-Enhanced Constructed Response (TECR)—

- Uses technology to capture student comprehension of texts in authentic ways that have been difficult to score by machine for large scale assessments (e.g., drag and drop, cut and paste, shade text, move items to show relationships).

Performance-Based Components

- **Literary Analysis Tasks** – students will *read literature and compose an analytic essay.*

- **Narrative Tasks** – students will *convey real or imaginary, experiences or events* (e.g. write a story, detail a scientific process, write a historical account of important figures, describe an account of events, scenes or objects).

- **Research Simulation Tasks** – students will *analyze an informational topic* presented through *several articles or multimedia stimuli* and then *answer a series of questions, synthesizing information from multiple sources,* in order to *write two analytic essays.*

Literary Analysis Task (Grade 10): Ovid's "Daedalus and Icarus" and Sexton's "To a Friend Whose Work Has Come to Triumph"

Grade 10 Prose Constructed-Response Item

Use what you have learned from reading "Daedalus and Icarus" by Ovid and "To a Friend Whose Work Has Come to Triumph" by Anne Sexton to write an essay that provides an analysis of how Sexton transforms Daedalus and Icarus.

As a starting point, you may want to consider what is emphasized, absent, or different in the two texts, but feel free to develop your own focus for analysis.

Develop your essay by providing textual evidence from both texts. Be sure to follow the conventions of standard English.

Part A

Which of the following sentences best states an important theme about human behavior as described in Ovid's "Daedalus and Icarus"?

a. Striving to achieve one's dreams is a worthwhile endeavor.

b. The thoughtlessness of youth can have tragic results.*

c. Imagination and creativity bring their own rewards.

d. Everyone should learn from his or her mistakes.

Part B

Select three pieces of evidence from Ovid's "Daedalus and Icarus" that support the answer to Part A.

a. "and by his playfulness retard the work/his anxious father planned" (lines 310-311)*

b. "But when at last/the father finished it, he poised himself" (lines 312-313)

c. "he fitted on his son the plumed wings/ with trembling hands, while down his withered cheeks/the tears were falling" (lines 327-329)

d. "Proud of his success/the foolish Icarus forsook his guide" (lines 348-349)*

e. "and, bold in vanity, began to soar/rising above his wings to touch the skies" (lines 350-351)*

f. "and as the years went by the gifted youth/began to rival his instructor's art" (lines 376-377)

g. "Wherefore Daedalus/enraged and envious, sought to slay the youth" (lines 384-385)

h. "The Partridge hides/in shaded places by the leafy trees…for it is mindful of its former fall" (lines 395-396, 399)

Texts Worth Reading

- **Range:** Example of assessing literature and helping to satisfy the 70%-30% split of informational text to literature at the high school grade band.

- **Quality:** The story of Daedalus and Icarus from Ovid's *Metamorphoses* is a classic of the genre and has proven to be inspirational to painters and poets alike, and no poet's version is more striking than that of Anne Sexton. Her "To a Friend Whose Work Has Come to Triumph" refashions the themes of the myth in dramatic fashion, providing a powerful counterpoint for students to explore.

- **Complexity:** Quantitatively and qualitatively, the passages have been validated and deemed suitable for use at grade 10.

Aligns to the Standards and Reflects Good Practice – (PCR)

- Specific CCSS alignment to:
  - RL.10.1 (use of evidence); RI.10.9 (comparison of authors' presentation); RL.10.10 (complex texts).
  - W.10.2 (writing to inform and explain); W.10.4 (writing coherently); W.10.9 (drawing evidence from texts).
  - L10.1-3 (grammar and conventions).
- Measures the ability to explain how *one text transforms ideas from another text* by focusing on a specific concept presented in the texts (the transformation of ideas with regard to the experience of flying).
- Asks students to *write to sources* rather than write to a de-contextualized prompt.
- Focuses on students' rigorously *citing evidence* for their answer.
- Requires students to demonstrate they can apply the *knowledge of language and conventions* when writing.

Aligns to the Standards and Reflects Good Practice – (EBCR)

- Specific CCSS alignment to:
  – RL.10.1 (evidence).
  – RL.10.2 (theme).
  – RL.10.10 (complex text).

- This item helps students gather information and details for use on the Prose Constructed Response; it requires *close analytical reading* to answer both parts correctly (e.g., Part A of this item is challenging because it requires synthesis of several parts of the myth to determine the answer).

- Requires students in Part B to *provide evidence* for the accuracy of their answer in Part A.

- PARCC assessment gives students the opportunity to gain partial credit if their answers reflect genuine comprehension on their part (e.g., they identify the theme correctly and are able to identify at least 2 details).

Narrative Task (Grade 6):

Jean Craighead George's

Excerpt from *Julie of the Wolves*

Grade 6 Prose Constructed-Response Item

In the passage, the author developed a strong character named Miyax. Think about Miyax and the details the author used to create that character. The passage ends with Miyax waiting for the black wolf to look at her.

Write an original story to continue where the passage ended. In your story, be sure to use what you have learned about the character Miyax as you tell what happens to her next.

Part A

What does the word "regal" mean as it is used in the passage?

a. generous
b. threatening
c. kingly*
d. uninterested

Part B

Which of the phrases from the passage best helps the reader understand the meaning of "regal?"

a. "wagging their tails as they awoke"
b. "the wolves, who were shy"
c. "their sounds and movements expressed goodwill"
d. "with his head high and his chest out"*

Part A

Choose one word that describes Miyax based on evidence from the text. There is more than one correct choice listed below.

A.   reckless

B.   lively

C.   imaginative*

D.   observant*

E.   impatient

F.   confident

Part B

Find a sentence in the passage with details that support your response to Part A. Click on that sentence and drag and drop it into the box below.

Part C

Find a second sentence in the passage with details that support your response to Part A. Click on that sentence and drag and drop it into the box below.

Texts Worth Reading

- **Range:** Example of assessing literature and helping to satisfy the 55%-45% split of informational text to literature at the 6-8 grade-band.

- **Quality:** *Julie of the Wolves* was a winner of the Newbery Medal in 1973. This text about a young Eskimo girl surviving on her own in the tundra by communicating with wolves offers a story rich with characterization and imagery that will appeal to a diverse student population.

- **Complexity:** Quantitatively and qualitatively, the passages have been validated and deemed suitable for use at grade 6.

Aligns to the the Standards and Reflects Good Practice – (PCR)

- Specific CCSS alignment to:
  - RL.6.1 (use of evidence); RL.6.3 (describe how characters respond to changes); RL.6.10 (complex text).
  - W.6.3 (narrative writing); W.6.4 (writing coherently).
  - L.6.1-3 (grammar and conventions).

- Includes *rigorous expectations for narrative writing*, including weaving details from the source text accurately into an original narrative story (students must draw evidence from the text—character traits and the events of the story—and apply that understanding to create a story).

- For students who struggle to create original stories, the source text provides ideas from which to begin; for those students who readily create imaginative experiences, the source provides a means to "jump off" and innovate.

- Focuses on students applying their *knowledge of language and conventions* when writing (an expectation for both college and careers).

Aligns to the Standards and Reflects Good Practice - (EBCR)

- Specific CCSS alignment to:
  - RL.6.1 (use of evidence).
  - RL.6.4 (meaning of words and phrases).
  - RL.6.10 (complex texts).
- Reflects a key shift, namely focusing on the words that matter most, not obscure vocabulary, but the *academic language* that pervades complex texts.
- Rewards *careful, close reading* rather than requiring the students to race through the passage to determine the meaning of an academic word by showing the context within the passage that helped them determine the meaning of the word.

Aligns to the Standards and Reflects Good Practice – (TECR)

- Specific CCSS alignment to:
  - RL.6.1 (use of evidence).
  - RL.6.3 (how characters respond).
  - RL.6.10 (complex texts).
- Rather than a single right answer, this item allows students to explore different solutions and *generate varying insights* about a multi-dimensional character, choosing the word they most strongly feel they can defend.
- The item also insists on students *rigorously substantiating their conclusions/insights* about the character of Miyax with two details drawn from the text, helping students gather information and details for use on the Prose Constructed Response.
- Technology enables students to "drag and drop" evidence that supports their understanding.

Research Simulation Task (Grade 7):
Amelia Earhart's Disappearance

Understanding the Research Simulation Task

- Session 1:
  - Students begin by reading an anchor text that introduces the topic. EBSR and TECR items ask students to gather key details about the passage to support their understanding.
  - Then, they write a summary or short analysis of the piece.
- Session 2:
  - Students read two additional sources (may include a multimedia text) and answer a few questions about each text to learn more about the topic so they are ready to write the final essay and to show their reading comprehension.
  - Finally, students mirror the research process by synthesizing their understandings into an analytic essay using textual evidence from several of the sources.

Grade 7 Analytical Prose Constructed-Response

Item #1

Based on the information in the text "Biography of Amelia Earhart," write an essay that summarizes and explains the challenges Earhart faced throughout her life. Remember to use textual evidence to support your ideas.

You have read three texts describing Amelia Earhart. All three include the claim that Earhart was a brave, courageous person. The three texts are:

- "Biography of Amelia Earhart"

- "Earhart's Final Resting Place Believed Found"

- "Amelia Earhart's Life and Disappearance"

Consider the argument each author uses to demonstrate Earhart's bravery.

Write an essay that analyzes the strength of the arguments about Earhart's bravery in at least two of the texts. Remember to use textual evidence to support your ideas.

Below are three claims that one could make based on the article "Earhart's Final Resting Place Believed Found."

Claims	Earhart and Noonan lived as castaways on Nikumaroro Island.
	Earhart and Noonan's plane crashed into the Pacific Ocean.
	People don't really know where Earhart and Noonan died.

Part A

• Highlight the claim that is supported by the most relevant and sufficient facts within "Earhart's Final Resting Place Believed Found."

Part B

• Click on two facts within the article that best provide evidence to support the claim selected in Part A.

Texts Worth Reading

- **Range:** Example of assessing reading across the disciplines and helping to satisfy the 55%-45% split of informational text to literature at the 6-8 grade band.

- **Quality:** The texts on Amelia Earhart represent content-rich nonfiction on a topic that is historically significant.

- **Complexity:** Quantitatively and qualitatively, the passages have been validated and deemed suitable for use at grade 7.

Aligns to the Standards and Reflects Good Practice – (PCR Item #1)

- Specific CCSS alignment to:
  - RI.7.1 (use of evidence); RI.7.2 (summary of text); RI.7.10 (complex texts).
  - W.7.2 (writing to explain or inform); W.7.4 (writing coherently); W.7.9 (drawing evidence from texts).
  - L.7.1-3 (grammar and conventions).

- Requires *writing to sources* rather than to a de-contextualized or generalized prompt (e.g., asks about a specific aspect of Earhart's life).

- Requires students to *draw evidence* from the text and cite this evidence clearly.

- Requires students to apply the *knowledge of language and conventions* when writing.

- Purposely designed to help students gather information for writing the final analytic essay that asks students to evaluate the arguments made in three texts about Earhart's bravery (i.e., her bravery can be expressed as her ability to face the many challenges).

Aligns to the Standards and Reflects Good Practice – (PCR Item #2)

- Specific CCSS alignment to:
  - RI.7.1 (use of evidence); RI.7.8 (evaluate claims in a text); RI.7.9 (comparison of authors' presentation); RI.7.10 (complex texts).
  - W.7.2 (writing to inform and explain); W.7.4 (writing coherently); W.7.7 (conduct short research projects); W.7.8 (gather relevant information from multiple sources); W.7.9 (drawing evidence from texts).
  - L.7.1-3 (grammar and conventions).

- Measures the ability to *compare and synthesize ideas* across multiple texts and the ability to analyze the strength of various arguments.

- Asks students to *write to sources* rather than write to a de-contextualized prompt.

- Focuses on students rigorously *citing evidence* for their answer.

- Requires students to delve deeply into multiple texts to gather evidence to analyze a given claim, *simulating the research process.*

- Requires students to demonstrate they can apply the *knowledge of language and conventions* when writing.

Aligns to Standards and Reflects Good Practice (TECR)

- Specific CCSS alignment to:
  - RI.7.1 (use of evidence).
  - RI.7.8 (author's claims and evidence).
  - RI.7.10 (complex texts).

- This item helps students gather information and details for use on the first and second Prose Constructed Response.

- Requires students to *employ reasoning skills*, since all of the claims listed could be made, but only one is supported by the most relevant and sufficient facts.

- Reflects the key shift of *reading closely and weighing evidence* by offering credit for Part B only if Part A is correct.

- Technology enables students to highlight evidence that supports their understanding.

End-Of-Year Assessment

- Students will demonstrate their ability to read and comprehend complex informational and literary texts by answering questions that will be sequenced in a way that draw students into deeper encounters with the texts.

End-of-Year Assessment (Grade 3):
"How Animals Live"

Understanding the End-of-Year Assessment

- Students will be given *several passages* to read closely.

- EBSR and TECR questions will assess higher order skills such as critical reading and analysis, the comparison and synthesis of ideas within and across texts, and determining the meaning of words and phrases in context.

Part A

What is one main idea of "How Animals Live?"

a. There are many types of animals on the planet.

b. Animals need water to live.

c. There are many ways to sort different animals.*

d. Animals begin their life cycles in different forms.

Part B

Which sentence from the article best supports the answer to Part A?
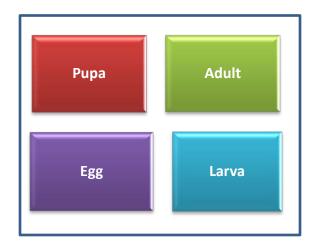
a. "Animals get oxygen from air or water."

b. "Animals can be grouped by their traits."*

c. "Worms are invertebrates."

d. "All animals grow and change over time."

e. "Almost all animals need water, food, oxygen, and shelter to live."
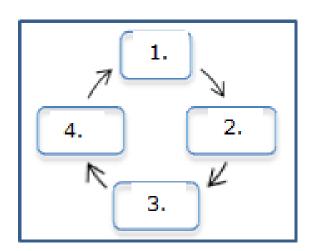
Drag the words from the word box into the correct locations on the graphic to show the life cycle of a butterfly as described in "How Animals Live."

Words:

Texts Worth Reading

- **Range:** Follows the requirements in the standards to make use of informational texts, including history, science, and technical passages (50% of the points in grades 3-5 are to come from informational texts).

- **Quality:** This is an example of a science passage from a third-grade textbook.

- **Complexity:** Quantitatively and qualitatively, the passages have been validated and deemed suitable for use at grade 3.

Aligns to the Standards and Reflects Good Practice - (EBSR)

- Specific CCSS alignment to:
  - RI.3.1 (evidence).
  - RI.3.2 (main idea).
  - RI.3.10 (complex text).
- While this is an example of a less complex item—one where the main idea and details to support it are explicit and readily found—students must *provide evidence* for the accuracy of their answer in Part B, illustrating one of the key shifts: use of textual evidence.

Aligns to the Standards and Reflects Good Practice – (TECR)

- Specific CCSS alignment to:
  - RI.3.1 (use of evidence).
  - RI.3.3 (relationship between events).
  - RI.3.10 (complex texts).
- Reflects the key shift of *building knowledge from informational text*:
  - students must apply their understanding of the text to complete the graphic.
  - requires explicit references to the text as the basis for the answers rather than simply guessing.
- Whereas traditional items might have asked students to "fill in one blank" on a graphic (with three steps already provided), this technology enhanced item allows students to demonstrate *understanding of the entire sequence* of the life cycle because none of the steps are ordered for them.

Turn and Talk

- **What will *students* need to know and be able to do** in order to perform well on the ELA PARCC assessment?

- **What do *we* need to know and be able to do** in order to help students develop these proficiencies?

- What are our **obstacles and opportunities for change?**

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Advances in the PARCC Mathematics Assessment

August 2012
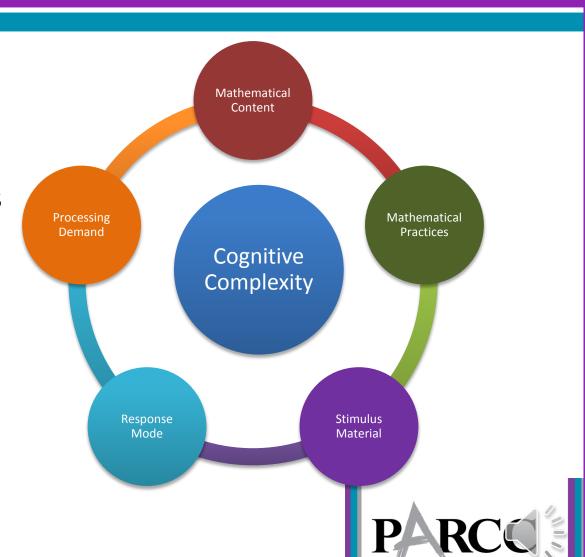
PARCC's Core Commitments to Mathematics Assessment Quality

- **Focus:** Items will focus on major, and additional and supporting content.

- **Problems worth doing**: Problems will include conceptual questions, applications, multi-step problems and substantial procedures.

- **Better Standards Demand Better Questions:** Custom items written to the Standards instead of reusing existing items.

- **Fidelity to the Standards** : PARCC evidences are rooted in the language of the Standards so that expectations remain the same in both instructional and assessment settings.

Factors that determine the performance levels (Cognitive Complexity)

1. Mathematical Content

2. Mathematical Practices

3. Stimulus Material

4. Response Mode

5. Processing Demand

PARCC Design for Math

1. **Focus:** The PARCC Assessment will focus strongly where the Standards focus

2. **Coherence**: Think across grades and link to major topics within grades

3. **Rigor**: In major topics, pursue conceptual understanding, procedural skill and fluency, and application.

Shift #1 – **Focus** strongly where the Standards focus

Advance: 70% or more of the assessment will measure the major work in grades 3-8

- Focus allows for a variety of problem types to get at concept in multiple ways.

- Students will have more time to master concepts at a deeper level.

Shift #2 - **Coherence: Think** across grades, and **link** to major topics within grades

Advance: The assessment design is informed by multi-grade progressions in the Standards and the *Model Content Frameworks*.

■ Key beginnings are stressed (e.g., ratio concepts in grade 6), as are key endpoints and takeaway skills (e.g., fluency with the multiplication table in grade 3).

Shift #2 - **Coherence: Think** across grades, and **link** to major topics within grades

Advance: Integrative tasks draw on multiple standards to ensure students are making important connections.

- The Standards are not treated as a checklist.

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Shift #3 - **Rigor:** In major topics, pursue **conceptual understanding,** procedural skill and **fluency**, and **application**

Advance: PARCC assessments will reach the rigor in the Standards through innovations in technology and item design.

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- Supporting **accessibility** (the ability to hover over a word to see and/or hear its definition, etc.)

- **Transformative formats** (simulations to improve a model, game-like environments, drawing/ constructing diagrams or visual models, etc.)

- Getting **beyond the bubble** to avoid guessing or choice elimination.

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- Capturing **complex student responses** through a device interface (e.g., using drawing tools, symbol palettes, etc.)

- Machine scorable multi-step tasks are **more efficient** to administer and score.

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PARCC mathematics assessments will include three types of tasks.

Task Type	Description of Task Type
I. Tasks assessing *concepts, skills and procedures*	• Balance of conceptual understanding, fluency, and application • Can involve any or all mathematical practice standards • Machine scorable including innovative, computer-based formats • Will appear on the End of Year and Performance Based Assessment components
II. Tasks assessing *expressing mathematical reasoning*	• Each task calls for written arguments / justifications, critique of reasoning, or precision in mathematical statements (MP.3, 6). • Can involve other mathematical practice standards • May include a mix of machine scored and hand scored responses • Included on the Performance Based Assessment component
III. Tasks assessing *modeling / applications*	• Each task calls for modeling/application in a real-world context or scenario (MP.4) • Can involve other mathematical practice standards. • May include a mix of machine scored and hand scored responses • Included on the Performance Based Assessment component

For more information see PARCC Item Development ITN Appendix D.

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Baseball stadiums have different numbers of seats. Drag the tiles to arrange the stadiums from least to greatest number of seats.

San Francisco Giants' stadium: 41,915 seats	Washington Nationals' stadium: 41,888 seats	San Diego Padres' stadium: 42,445 seats

	<		<	

Stadium Task Part B

Write your answer to the following problem in your answer booklet.

San Francisco Giants' stadium: 41,915 seats	Washington Nationals' stadium: 41,888 seats	San Diego Padres' stadium: 42,445 seats

Compare these statements from two students.

Jeff said, "I get the same number when I round all three numbers of seats in these stadiums."

Sara said, "When I round them, I get the same number for two of the stadiums but a *different* number for the other stadium."

Can Jeff and Sara both be correct? Explain how you know.

Write your answer to the following problem in your answer booklet.

When rounded to the nearest hundred, the number of seats in Aces Baseball Stadium is 9,100.

What is the greatest number of seats that could be in this stadium? Explain how you know.

Part	Solution	Points	Maximum points possible
a	Student places the tiles in the correct order: **Washington Nationals' stadium: 41,888 seats** < **San Francisco Giants' stadium: 41,915 seats** < **San Diego Padres' stadium: 42,445 seats**	1	1

| b | **Student gives a clear and correct explanation such as:**

· Yes. Rounding to different place values gives you a different estimate/number.
· Yes. If you round all three numbers to the nearest thousand or ten thousand all three numbers round the same.
· Any other mathematically valid explanation.

Note: If a student answers that either Sara or Jeff were wrong, the student can receive partial credit at most.

(Partial credit: The student's explanation lacks precision, but he or she shows some understanding of rounding—as related to the problem.) | 2*

(1)* | 2 |

c	**Student gives the correct answer**: 9,149	2*	4
	(Partial credit: The student gives a number between 9,101 and 9,148 – inclusive).	(1)*	
	Student gives a clear and correct explanation for the answer:	2*	
	· 9,150 rounds up to 9,200 and 9,149 rounds down to 9,100. Therefore, 9,149 is the largest number that rounds to 9,100 when rounding to the nearest hundred. · 9,149 is the largest number that is closer to 9,100 than any other hundred. · Any other mathematically valid explanation.		
	(Partial credit for explanation: The student's explanation is not accurate or precise, but he or she shows some understanding of rounding—as related to the problem.)	(1)*	
	Total points possible	7	7

Understanding the Stadium Task

Students have developed their understanding of place value in previous grades. Fourth graders are expected to generalize this understanding of place value to multi-digit whole numbers. This three-part task calls for students to demonstrate reasoning skills and a deep conceptual knowledge of place value in atypical ways. This task uses the securely-held content of rounding to assess the Standards for Mathematical Practice—**MP.3**: Construct viable arguments and critique the reasoning of others and **MP.6**: Attend to precision. Because these practices, and not the content, are the focus of the task, it is considered a "practice forward" task.

Part a is designed to allow students an accessible entry into the content, asking them to sequence three large numbers using drag-and-drop technology. This technology enables students to test their ideas about number relationships before submitting their answer electronically. In **Parts b and c**, students must think deeply about what rounding means in terms of the sizes of numbers and their relationships to one another. Knowing the rules of rounding and place value is not sufficient for students to answer the questions and explain their thinking. **Part b** asks students to critique the work of others (**MP.3**), while **Part c** asks students to justify their conclusions (**MP.3**) and addresses both precise communication and flexible reasoning (**MP.6**).

This task asks students to demonstrate their understanding and explain their thinking in ways to which many American students have not been exposed. Future research might address more broadly how students respond to tasks that call for deep understanding, supported by precise explanations, and what the influence of such assessment tasks might be on instruction.

A store is advertising a sale with 10% off all items in the store. Sales tax is 5%.

A 32-inch television is regularly priced at $295.00. What is the total price of the television, including sales tax, if it was purchased on sale? Fill in the blank to complete the sentence. Round your answer to the nearest cent.

The total cost of the television is $ _____ .

TV Sale Task Part B

Write your answers to the following problem in your answer booklet.

A store is advertising a sale with 10% off all items in the store. Sales tax is 5%.

Adam and Brandi are customers discussing how the discount and tax will be calculated.

Here is Adam's process for finding the total cost for any item in the store.

- Take 10% off the original price.
- Then, add the sales tax to the discounted price.

Adam represents his process as:

$$T = \underbrace{0.9p}_{\text{sale price}} + \underbrace{0.05(0.9p)}_{\text{sales tax}}$$

Here is Brandi's process for finding the total cost for any item in the store.

- Determine the original price of the item, including sales tax.
- Then, take 10% off.

Brandi represents her process as:

$$T = \underbrace{1.05p}_{\substack{\text{T.V. price} \\ \text{plus tax}}} - \underbrace{0.10(1.05p)}_{\substack{\text{10\% off} \\ \text{discount}}}$$

In both equations, T represents the total cost of the television and p represents the regular price.

Are they both correct? Use the properties of operations to justify your answer.

Part	Solution	Points	Maximum points possible
a	**Student gives a correct answer:** · $278.77 · $278.78	1	1
b	**Student correctly identifies that both students are correct and gives a full and complete explanation:** · Student should use the properties of operations to verify that the equations are equivalent. Answers will vary; sample answer:	4*	4

| b | **Student correctly identifies that both students are correct and gives a full and complete explanation:**

• Student should use the properties of operations to verify that the equations are equivalent. Answers will vary; sample answer:
 ◦ Adam's process was to find the sale price first and then add the tax. This could be represented symbolically as:
 ■ $T = 0.9p + 0.05(0.9p)$ where p represents the original price and T represents final cost.
 ■ $T = 0.9p + 0.045p$
 ■ $T = 0.945p$
 ■ After using the properties of operations to simplify Adam's process, the TV will cost 94.5% of its original price.
 ◦ In comparison, Brandi wanted to add the sales tax to the original price and then deduct 10%. This could be represented symbolically as:
 ■ $T = 1.05p - 0.10(1.05p)$ where p represents the original price of the item and T represents final cost.
 ■ $T = 1.05p - 0.105p$
 ■ $T = 0.945p$
 ■ As in Adam's process, Brandi's strategy also | 4ᵛ | 4 |

- - As in Adam's process, Brandi's strategy also determines that the final cost of the TV is 94.5% of its original price. Adam and Brandi's equations are equivalent.
  - Alternative solution using inputs and outputs:
    - If an item cost $100, it would be $90 after the discount + $4.50 for tax or $94.50. If in reverse order, the $100 would cost $100 + $5 after tax for $105 with a $10.50 discount resulting in the same cost of $94.50.
    - Student should provide similar examples to verify that it works for more than one price.

  - (Partial credit: Student provides a partial explanation that does not discuss or apply the properties of operations.)   (2)*

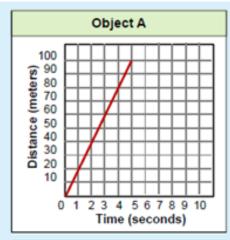|		Total points possible	5	5

Understanding the TV Task

This two–part task integrates content from across the grade level and calls for students to apply proportional reasoning and properties of operations as they critique others' reasoning. The idea of critiquing the reasoning of others (**MP.3**) is a new demand in the CCSSM not typically addressed on most current state assessments. This is an important feature of the task, thus making it a "practice forward" task.
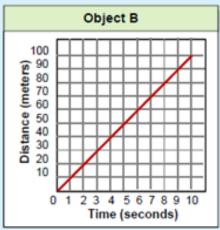
According to the CCSSM, students in grade 7 use their understanding of ratios and proportionality to solve a wide variety of percent problems and use properties of operations to generate equivalent expressions. In this task, students must also evaluate two different forms of reasoning and justify their analysis.

In **Part a**, students engage in a multistep percent scenario; they must deal with both discount and sales tax. This fairly traditional assessment item provides an entry point to set up the reasoning and understanding required in **Part b**, in which students are presented with two lines of reasoning and must evaluate whether the two are equivalent. The crux of the reasoning rests in their ability to apply properties of operations to algebraic equations.

Object A

Distance (meters) vs. Time (seconds)

Object B

Distance (meters) vs. Time (seconds)

Object C

Time (seconds)	Distance (meters)
0	0
3	10
6	20
9	30

Object C moves at constant speed.
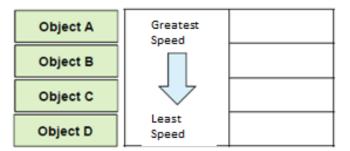
Object D

Time (seconds)	Distance (meters)
0	0
1.5	10
3	20
4.5	30

Object D moves at constant speed.

The speed of an object is defined as the change in distance divided by the change in time.

Information about objects A, B, C and D are shown in the graphs and tables.

Based on the information given, drag and drop the object names in order from greatest speed to least speed in the table provided.

Object A

Object B

Object C

Object D

Greatest Speed

Least Speed

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- A multi-point problem is devoted to a single standard about proportional relationships, which are a major focus in grades 6 and 7.

- Unlike traditional multiple choice, it is difficult to guess the correct answer or use a choice elimination strategy.

- Variants of the task could probe understanding of unit rates and representations of proportional relationships by showing different scales on the two graphs, and/or by presenting the data in tables C and D with the ordered pairs not equally spaced in time.

Alignment: Most Relevant Content Standard(s)

- 7.RP.2b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

- 7.RP.2d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.

Alignment: Most Relevant Mathematical Practice(s)

- MP.2 (Reason abstractly and quantitatively) Students must relate the graphs and tables to each other via the unit rate and then to the context at hand.
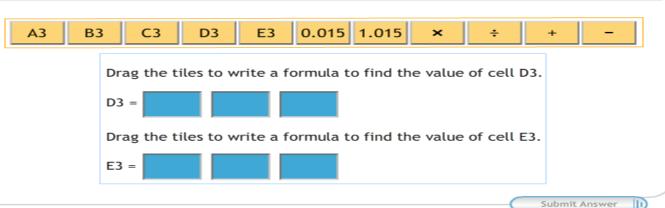
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Isabella's Credit Card
Part A

Isabella owes a balance of $300 on her credit card. She has stopped making purchases with the card, and she plans to make a $40 payment each month until her debt is paid and her credit card balance is $0. The monthly rate is 1.5%, and interest is added each month to the balance that remains.

Consider the spreadsheet. In a spreadsheet, each entry (cell) is referred to by its column letter and row number. For example, 260.00 is the entry in cell D2 of this spreadsheet.

	A	B	C	D	E
1	Month	Amount owed ($)	Monthly payment ($)	Remaining amount owed after payment ($)	Amount owed after 1.5% interest charge($)
2	1	300.00	40.00	260.00	263.90
3	2	263.90	40.00		

A3	B3	C3	D3	E3	0.015	1.015	×	÷	+	−

Drag the tiles to write a formula to find the value of cell D3.

D3 = ☐ ☐ ☐

Drag the tiles to write a formula to find the value of cell E3.

E3 = ☐ ☐ ☐

Submit Answer

Isabella owes a balance of $300 on her credit card. She has stopped making purchases with the card, and she plans to make a $40 payment each month until her debt is paid and her credit card balance is $0. The monthly rate is 1.5%, and interest is added each month to the balance that remains.

Fill in the blanks with values to correctly complete the spreadsheet. Use dollar amounts written as decimals rounded to the nearest cent.

	A	B	C	D	E
1	Month	Amount owed ($)	Monthly payment ($)	Remaining amount owed after payment ($)	Amount owed after 1.5% interest charge($)
2	1	300.00	40.00	260.00	263.90
3	2	263.90	40.00	[blank]	[blank]
4	3	[blank]	40.00	[blank]	[blank]

Submit Answer

Isabella owes a balance of $300 on her credit card. She has stopped making purchases with the card, and she plans to make a $40 payment each month until her debt is paid and her credit card balance is $0. The monthly rate is 1.5%, and interest is added each month to the balance that remains.

Fill in the blanks based on your calculations. Use dollar amounts written as decimals rounded to the nearest cent.

At the end of the sixth month, how much will Isabella still owe on the credit card?

$ [   ]

Isabella will finish paying off her credit card debt in [   ] months.

What is the amount of Isabella's last payment?

$ [   ]

Submit Answer ▐▶

Part	Solution	Points	Maximum points possible
a	**Student drags the tiles to write a formula to find the value of cell D3:** D3 = [B3] [–] [C3]	1	2
	Student drags the tiles to write a formula to find the value of cell E3: E3 = [D3] [×] [1.015] OR E3 = [1.015] [×] [D3]	1	

b	Student fills in the blanks in row 3 with the following correct answers: · Slot A: **223.90** or **223.9** · Slot B: **227.26**	1	2
	Student fills in the blanks in row 4 with the following correct answers: · Slot C: **227.26** · Slot D: **187.26** · Slot E: **190.07**	1	

c	Student fills in all three blanks with the following correct answers (1 point for each correct answer):		3
	· Slot A: **75.11** or **75.12**	1	
	· Slot B: **8**	1	
	· Slot C: **35. 64**	1	
	Total points possible	7	7

Understanding the Credit Card Task

The CCSSM content standards for this task are starred; that is, they require the use of a modeling perspective. Students are expected to make sense of the contextual situation, extract and use mathematics to model the situation, answer mathematical questions, and then solve the problem within the context. This three-part task requires the use of the Standards for Mathematical Practice—**MP.2**: Reason abstractly and quantitatively, and **MP.4**: Model with mathematics—thus making it a "practice forward" task.

The CCSSM calls for students to interpret key features of a quantitative relationship from tables with respect to a context as well as to determine a recursive process or describe steps for calculation from a context. These skills are often assumed but not explicitly called out in current state standards. However, they are explicit targets in the CCSSM. A spreadsheet is an appropriate tool for the iterative computations involved in many recursive processes, and is, in fact, one of the tools explicitly mentioned in Standard for Mathematical Practice 5: Use appropriate tools strategically.

In **Part a**, students consider a financial context requiring multiple calculations for each month—both a decrease in the amount owed due to payments made as well as the addition of interest on the remaining balance. Students create a recursive process for calculating values within the context.

In **Part b**, students calculate values and complete the table for the second and third months. Students are not specifically asked to use their recursive formulas written in **Part a**. Rather, the task allows for the use of either the recursive process or a description of steps that lead to a solution.

In **Part c**, students extend their use of the recursive process or sequence of steps to find additional values. They identify the important values and interpret those values within the context to answer the questions.

The page that students see resembles a spreadsheet, but it does not function as a spreadsheet at this time. Future iterations of this task by item development vendors could involve true spreadsheet functionality that allows students to enter recursive formulas in the appropriate cells, performs calculations based on those formulas, and scores students' work.
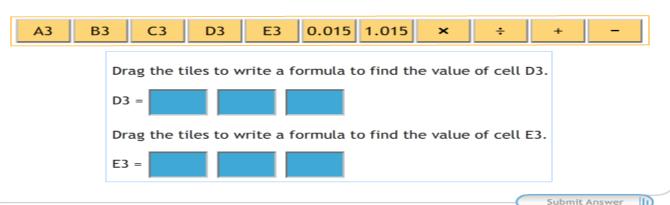
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A3	B3	C3	D3	E3	0.015	1.015	×	÷	+	−

Drag the tiles to write a formula to find the value of cell D3.

D3 = ☐ ☐ ☐

Drag the tiles to write a formula to find the value of cell E3.

E3 = ☐ ☐ ☐

Submit Answer

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Fill in the blanks with values to correctly complete the spreadsheet. Use dollar amounts written as decimals rounded to the nearest cent.

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4	3		40.00		

Submit Answer

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$ [   ]

Isabella will finish paying off her credit card debt in [   ] months.

What is the amount of Isabella's last payment?

$ [   ]

Submit Answer ▮▮

Check out the **Evidence Tables** for ELA and Math!

Instructional uses of the evidence statements/tables for teachers

- To see ways to combine standards naturally when designing instructional tasks

- To help determine alignment of a complex text with standards for instructional passage selection

- To develop the stem for questions/tasks for instruction aligned with the standards

- To determine and create instructional scaffolding (to think through which individual, simpler skills can be taught first to build to more complex skills)

- To develop rubrics and scoring tools for classroom use

Think, Pair, Share, Compare

Points of Comparison	CCSS	PARCC
Purpose What is the intent?		
Organization How are they organized?		
Content On what do they focus?		

ELA/Literacy for Grades 3–11

"On Track" Master Claim/Reporting Category:

Students are "on track" to college and career readiness in ELA/Literacy.

Major Claim: Reading Complex Text

Students read and comprehend a range of sufficiently complex texts independently.

Major Claim: Writing

Students write effectively when using and/or analyzing sources.

SC: Vocab. Interpretation and Use
(RL/RI.X.4 and L.X.4-6)

Students use context to determine the meaning of words and phrases.

SC: Reading Literature
(RL.X.1-10)

Students demonstrate comprehension and draw evidence from readings of grade-level, complex literary text.

SC: Reading Informational Text
(RI.X.1-10)

Students demonstrate comprehension and draw evidence from readings of grade-level, complex informational texts.

SC:Written Expression
(W.X.1-10)

Students produce clear and coherent writing in which the development, organization, and style are appropriate to the task, purpose, and audience.

SC: Conventions and Knowledge of Language
(L.X.1-3)

Students demonstrate knowledge of coventions and other important elements of language.

SC: Research
(data taken from Research Simulation Task)

Students build and present knowledge through integration, comparison, and synthesis of ideas

Claims Structure: Mathematics

Master Claim: On-Track for college and career readiness. The degree to which a student is college and career ready (or "on-track" to being ready) in mathematics. The student solves grade-level /course-level problems in mathematics as set forth in the Standards for Mathematical Content with connections to the Standards for Mathematical Practice.

Total Exam Score Points:
82 (Grades 3-8), 97 or 107(HS)

Sub-Claim A: Major Content[1] with Connections to Practices

The student solves problems involving the Major Content[1] for her grade/course with connections to the Standards for Mathematical Practice.

~37 pts (3-8), ~42 pts (HS)

Sub-Claim B: Additional & Supporting Content[2] with Connections to Practices

The student solves problems involving the Additional and Supporting Content[2] for her grade/course with connections to the Standards for Mathematical Practice.

~14 pts (3-8), ~23 pts (HS)

Sub-Claim C: Highlighted Practices MP.3,6 with Connections to Content[3] (expressing mathematical reasoning)

The student expresses grade/course-level appropriate mathematical reasoning by constructing viable arguments, critiquing the reasoning of others, and/or attending to precision when making mathematical statements.

14 pts (3-8),
14 pts (HS)
4 pts (Alg II/Math 3 CCR)

Sub-Claim D: Highlighted Practice MP.4 with Connections to Content (modeling/application)

The student solves real-world problems with a degree of difficulty appropriate to the grade/course by applying knowledge and skills articulated in the standards for the current grade/course (or for more complex problems, knowledge and skills articulated in the standards for previous grades/courses), *engaging particularly in the Modeling practice*, and where helpful making sense of problems and persevering to solve them (MP. 1),reasoning abstractly and quantitatively (MP. 2), using appropriate tools strategically (MP.5), looking for and making use of structure (MP.7), and/or looking for and expressing regularity in repeated reasoning (MP.8).

12 pts (3-8),
18 pts (HS)
6 pts (Alg II/Math 3 CCR)

Sub-Claim E: Fluency in applicable grades (3-6)

The student demonstrates fluency as set forth in the Standards for Mathematical Content in her grade.

7-9 pts (3-6)

[1] For the purposes of the PARCC Mathematics assessments, the Major Content in a grade/course is determined by that grade level's Major Clusters as identified in the *PARCC Model Content Frameworks v.3.0* for Mathematics. Note that tasks on PARCC assessments providing evidence for this claim will sometimes require the student to apply the knowledge, skills, and understandings from across several Major Clusters.

[2] The Additional and Supporting Content in a grade/course is determined by that grade level's Additional and Supporting Clusters as identified in the *PARCC Model Content Frameworks v.3.0* for Mathematics.

[3] For 3 – 8, Sub-Claim C includes only Major Content. For High School, Sub-Claim C includes Major, Additional and Supporting Content.

Resources

- Any publicly released assessment policies, item prototypes, PARCC Model Content Frameworks, and other valuable resources can be found at www.PARCConline.org